

Missouri Sector Strategies and Workforce Development Planning Project

**Webinar: Building Industry
Sector-Driven Career
Pathways**

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Accessing Webinar Recording and Slides



- This webinar was recorded and webinar materials have been posted to [the Sector Strategies section of the jobs.mo.gov website](https://jobs.mo.gov/sectorstrategies):
 - <https://jobs.mo.gov/sectorstrategies>
- The direct link to the webinar recording is <https://vimeo.com/171761354>

Today's Presenters



- Scott Sheely, Maher & Maher



- Gretchen Sullivan, Maher & Maher



Today's Agenda



- Discuss career pathways models, their key goals and features, and their role in the context of implementing industry sector strategies
- Explore a process for developing career pathways in a sector context
- Discuss ways to use the knowledge that we develop to...
 - Work with jobseekers in career counseling, and
 - Align education and training to pathways for individuals

Part 1: Career Pathways: Goals, Features, and Role in Industry Sector Strategies

Getting Started

What are career pathways?



- Well-articulated education, training, and credential sequences, K-12 through post-secondary, that:
 - Are driven by data
 - Align to the occupational and skill needs of employers in targeted industry sectors – as defined by those employers
 - Offer enhanced career entry, movement, and advancement opportunities for students, job seekers, and workers
 - Meet business needs for talent pipeline development across the skills spectrum
 - Align partners, programs, and resources around shared strategies for talent pipeline development

Pathways: Some Key Features



- Defined by data and employers
- Clear and seamless on- and off-ramps
 - “Start where you are”; No “dead ends”
- Help individuals work (earn) and learn at the same time
- Work as a central context for learning
- Modularized, shorter-term training and stackable credentials for accelerated gains in labor market competitiveness and earnings power
- Accelerated educational and career advancement through assessment of prior learning, integrated “basic” education and technical training, integrated “soft” skills training
- Navigation and supports at transition points
- Supported by shared partner planning and co-investment

Why career pathways?



- Go from strategizing to doing
- Meaningfully implement sector-based workforce solutions that matter to business, from entry-level to advanced positions
- Offer your students, job seekers, and workers more coherent, accessible, and promising opportunities
- Pathways as a strategy for aligning education and training to employers' needs and making it more agile/responsive
- Build relevance

Digging Deeper

Career Pathways: From “Jobs” to Career Progression



- Career pathways have become increasingly popular frameworks for talking about the variety of career options that are available to people who are preparing to enter the job market or looking for work after an employment dislocation.
- They use occupations as a kind of roadmap for jobseekers and many have been organized in “ladders” or “lattices” showing occupational progression.
- Pathways often have a skill progression sequence connected to them.

Career Pathway Models: Moving from Description to Data



Most career pathway models that are currently being used are theoretical and rather descriptive in nature.

However, they often need some other elements to be useful to workforce practitioners.

- They must be grounded in a thorough understanding of the industry mix of the regional economy.
- For the industries that emerge as the focus of a workforce investment strategy, any model must account for the occupations within the key industries that will be most in-demand over at least the next decade.

Career Pathway Models: Understanding KSAs and KSA Gaps



- As the character of pathways begin to emerge, they need to include information from occupational databases on the knowledge, skills, and abilities required as people move through the various levels of the path as well as the way the industries involved compensate workers as they move through the pathway.
- There needs to be a specific understanding of the gaps that emerge in knowledge, skills, and abilities as people move between levels so that curriculum can be informed and plan for the missing content.

Career Pathway Models: Quality Assessment and Staff Competencies



- As the model is applied, it needs practitioners who are comfortable enough with the data to talk knowledgeably about skills and the compatibility of skills from level to level. It also needs a system that assesses individuals and provides a connection to any needed training.
- A thorough assessment may reveal that a jobseeker has skill deficits that become barriers in moving to a potential occupation but it may just as easily show that the skills of the individual are adequate and that the person just needs to broaden their job search. Experience says that many dislocated workers, for example, may have as many as 80% of the skills that they will need for their next job.

Career Pathway Models: From Case Management to Career Coaching



- The workforce practitioner needs to understand this process and be able to interpret it to the jobseeker with whom s(he) is working.
- This may require an entirely new set of skills than the ones typically utilized for case management

Career Pathway Models: Staying Relevant and Agile



- Career pathways must also reflect the needs of employers and recognize the reality of the way people progress through levels of the work environment.
- They are just as important for incumbent workers as for entering workers, particularly at a time when employers in the US (and around the globe) are dealing with the talent shortage that will develop as the Baby Boom generation changes its relationship to work over the next several decades.

Career Pathway Models: One Size Does Not Fit All



- Industries like manufacturing and construction, which rely more on on-the-job training rather than those such as health care, which require more academic credentials and licensing, will have very different pathways.

Connecting Career Pathways and Sectors



- Career pathways are a key approach for operationalizing sector strategies
- Pathways illustrate the talent pipeline for targeted industry sectors, from entry-level to advanced occupations
- Pathways are a strategy for aligning education and training to employers' needs and being more agile/responsive in real time

Part 2: Developing Industry-Driven Career Pathways

Meeting People Where They Are



- Begin with a clear assessment of foundation, literacy, and hard skills.
- Ask them where they have worked and what they can do.
- See what open jobs are compatible with what they have done in the past.
- Talk skills.
- Suggest jobs that fit their skill profile.
- What additional skills would enhance their employability?

Staffing Pattern-Manufacturing



- Team Assemblers
- **First-Line Supervisors of Production and Operating Workers**
- **Heavy and Tractor-Trailer Truck Drivers**
- **Machinists**
- Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic
- **Inspectors, Testers, Sorters, Samplers, and Weighers**
- General and Operations Managers
- Laborers and Freight, Stock, and Material Movers, Hand
- **Maintenance and Repair Workers, General**
- Helpers--Production Workers
- Welders, Cutters, Solderers, and Brazers
- Tool and Die Makers
- Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
- **Computer-Controlled Machine Tool Operators, Metal and Plastic**
- Pourers and Casters, Metal
- Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic
- Office Clerks, General
- **Industrial Machinery Mechanics**
- Secretaries and Administrative Assistants, Except Legal, Medical, and Executive
- Assemblers and Fabricators, All Other
- Sawing Machine Setters, Operators, and Tenders, Wood

Compatible Occupations-Forklift



- Laborers and Freight, Stock, and Material Movers, Hand
- Hoist and Winch Operators
- Fence Erectors
- Packaging and Filling Machine Operators and Tenders
- Light Truck or Delivery Services Drivers
- Helpers--Production Workers
- Mine Cutting and Channeling Machine Operators
- Pourers and Casters, Metal
- Railroad Brake, Signal, and Switch Operators
- Rock Splitters, Quarry Operating Engineers and Other Construction Equipment Operators
- Tire Repairers and Changers
- Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic
- Recycling and Reclamation Workers
- Parking Lot Attendants
- Landscaping and Groundskeeping Workers
- Farmworkers, Farm, Ranch, and Aquacultural Animals
- Machine Feeders and Offbearers
- Paving, Surfacing, and Tamping Equipment Operators
- Molding and Casting Workers
- Sawing Machine Setters, Operators, and Tenders, Wood
- Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

Finding Career Pathways



- An analysis of the key industries in the regional economy that uses industry size, growth, and location quotient as the key variables leading to some choice of workforce investments (bubble chart).
- A growth projection of key occupations above the family-sustaining wage ranked by openings over a ten-year planning horizon (top 100 hot jobs).
- Organization of the top 100 hot jobs into compatible grouping (the beginning of career pathways) that are affirmed using wages and progressive skill development (career pathway descriptions).

Finding Career Pathways

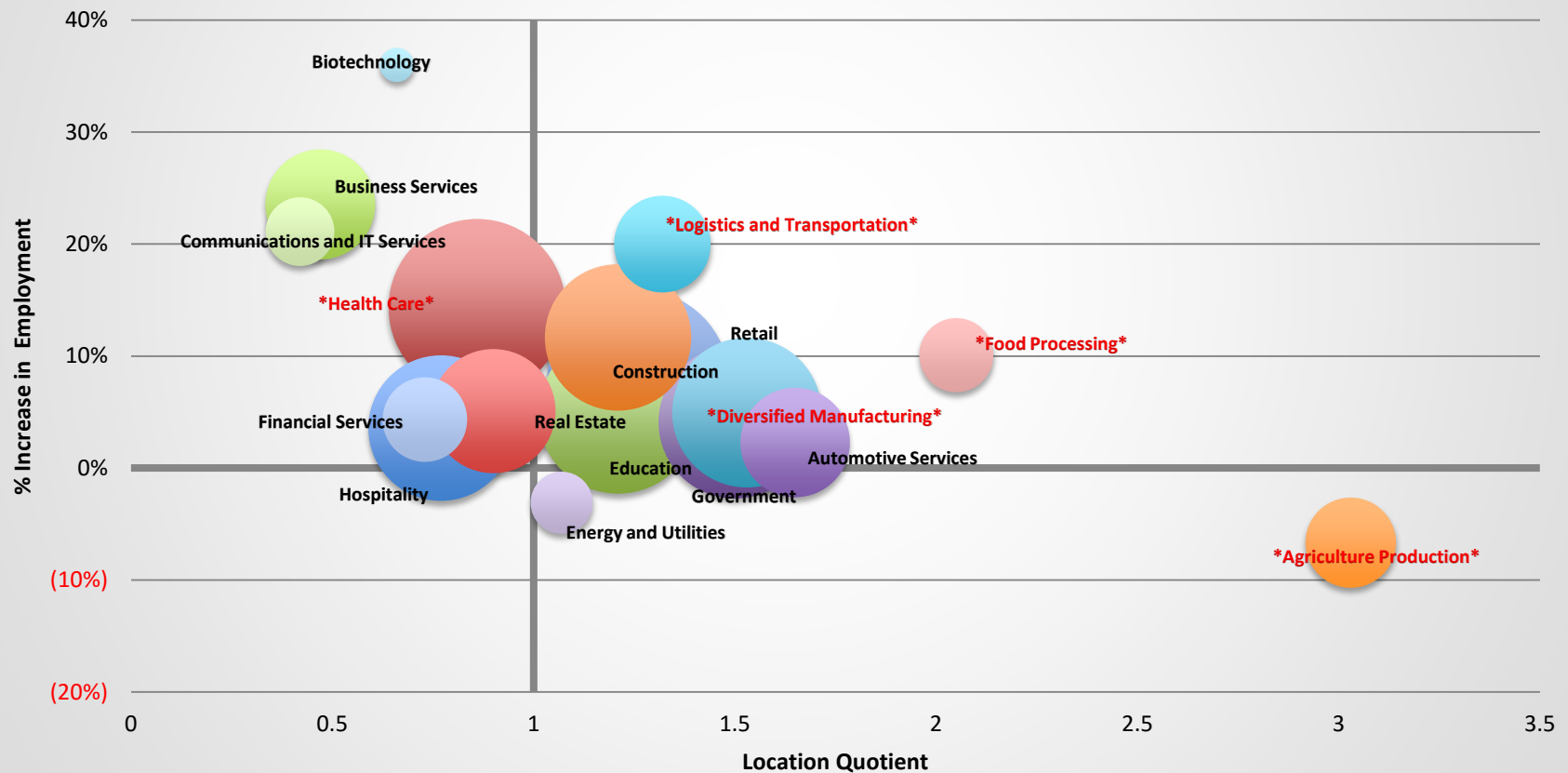


- Description of the compatible jobs for the jobs that comprise the entry-level of the career pathway (listing of those occupations).
- Comparison of knowledge, skills, and abilities at each level of the pathway (gap analysis).
- A skill acquisition map that charts existing training, certifications, and articulations and that identifies gaps in the local system (mapping document).

Bubble Chart



Industry Clusters in Northeast Region, MO



Top 100 Occupations



- Heavy and Tractor-Trailer Truck Drivers
- Construction Laborers
- General and Operations Managers
- Customer Service Representatives
- Registered Nurses
- Secondary School Teachers, Except Special and Career/Technical Education
- Elementary School Teachers, Except Special Education
- First-Line Supervisors of Retail Sales Workers
- Automotive Service Technicians and Mechanics
- Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
- Maintenance and Repair Workers, General
- Licensed Practical and Licensed Vocational Nurses
- Postsecondary Teachers
- Correctional Officers and Jailers
- Carpenters
- First-Line Supervisors of Office and Administrative Support Workers
- Police and Sheriff's Patrol Officers
- Accountants and Auditors
- Bookkeeping, Accounting, and Auditing Clerks
- Middle School Teachers, Except Special and Career/Technical Education
- Operating Engineers and Other Construction Equipment Operators
- Machinists
- Medical Assistants
- Inspectors, Testers, Sorters, Samplers, and Weighers
- Industrial Machinery Mechanics
- Packaging and Filling Machine Operators and Tenders
- First-Line Supervisors of Production and Operating Workers
- Industrial Truck and Tractor Operators

Identify Career Pathways



- Production
- Sales
- Administrative Support
- Health Care
- Construction and Trades
- Technical Support
- *Education*

Production Career Pathway



- Heavy and Tractor-Trailer Truck Drivers
- Construction Laborers
- Automotive Service Technicians and Mechanics
- Maintenance and Repair Workers, General
- Machinists
- Inspectors, Testers, Sorters, Samplers, and Weighers
- Industrial Machinery Mechanics
- Packaging and Filling Machine Operators and Tenders
- First-Line Supervisors of Production and Operating Workers
- Industrial Truck and Tractor Operators
- Light Truck or Delivery Services Drivers
- First-Line Supervisors of Mechanics, Installers, and Repairers
- Mixing and Blending Machine Setters, Operators, and Tenders
- Computer-Controlled Machine Tool Operators, Metal and Plastic
- Farm Equipment Mechanics and Service Technicians
- Water and Wastewater Treatment Plant and System Operators
- Bus and Truck Mechanics and Diesel Engine Specialists
- Food Batchmakers
- First-Line Supervisors of Helpers, Laborers, and Material Movers
- Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders
- Printing Press Operators

Production Career Ladder



Industrial Machinery Mechanic

- First-Line Supervisors of Production and Operating Workers
- Electricians

Printing Press Operator

- Food Batchmaker
- Truck Drivers
- Maintenance and Repair Workers

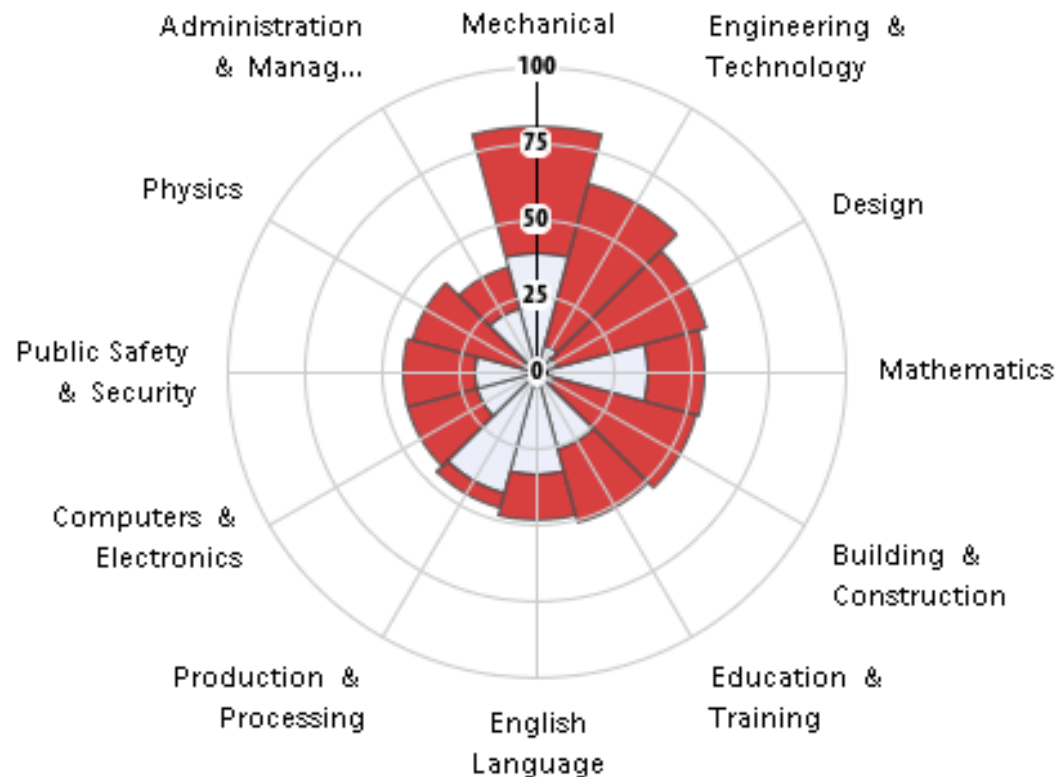
Industrial Truck and Tractor Operator

- Laborers and Freight Movers
- Inspectors, Testers, Sorters, and Weighers
- Machine Feeders and Offbearers

Press Operator to IMM-Know



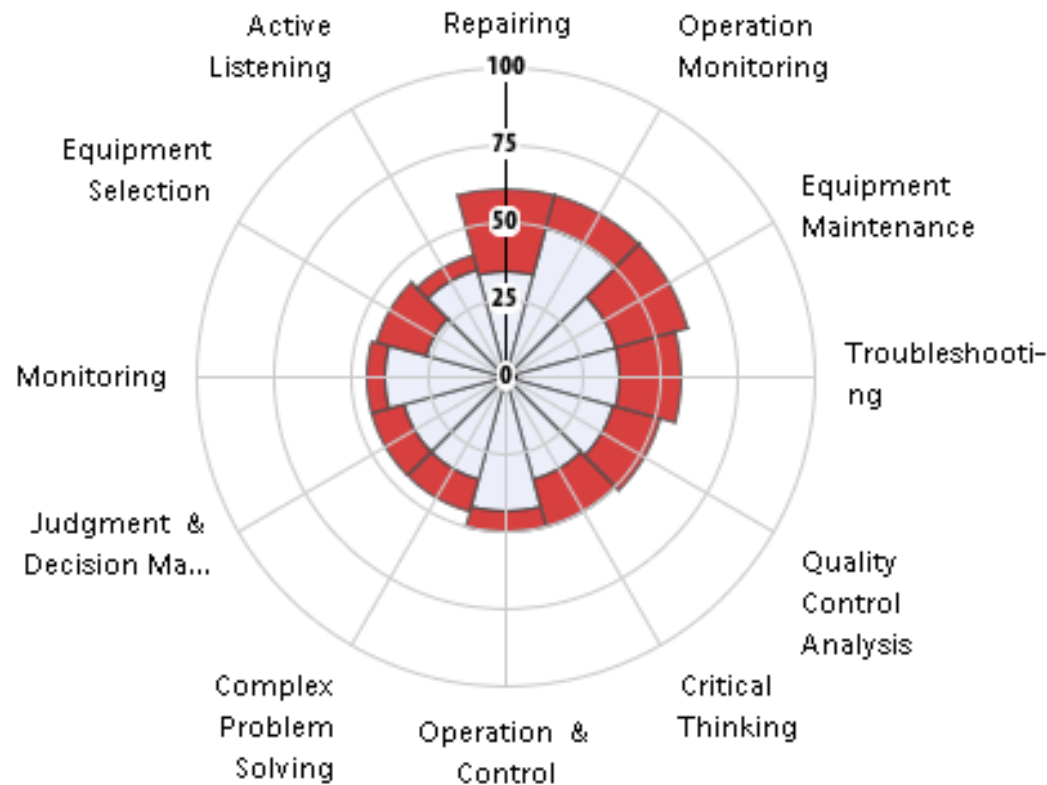
□ Level Overlap ■ Knowledge Gap



Press Operator to IMM-Skills



□ Level Overlap ■ Skills Gap



Certificates and Training



Industrial Machinery Mechanic

- AAS in Mechatronics Engineering Technology
- Mechatronics (Advanced Manufacturing/Integrated Systems Technology)
- Certified Apprenticeship

Printing Press Operator

- Production Technician Certificate
- Operators' Certificate
- Hot Lab
- Printing 101

Industrial Truck and Tractor Operator

- Blueprint Reading
- Maintenance Basics
- Forklift/OSHA certification
- ServSafe

Gap Analysis



- Is there a gap between the skills that the industry needs and the skill training that is available?
- What specifically are those skills?
- Validate with the industry.
- Ask the industry where the skills can best be obtained at the best price.
- How best can the skill training be delivered?
- Put your thoughts into a request for proposal with everything included...no favorites.

Part 3: Connecting Education and Training to Pathways

From What We've Learned to What We Do



- Once pathways have been validated and refined with employers, how do we inventory and asset-map for areas of alignment, disconnect, and gaps?
- Educational over/undersupply?
- Programs will need to adjust to align to pathways as defined by employers
 - E.g., compressed/modularized, started anew, modularized, etc.
- Available credentials will need to be assessed for relevance and currency with employers
- Wrap-around and transition programs and supports, such as adult education and essential/foundation skills development, will need to be integrated (not stand-alone or pre-requisite)
- How does front-line service delivery, organization, and customer flow change?

Part 4: Case Study

Production Skills in the Myrtle Beach, SC Area

Analysis of Local Economic Data



- Cluster analysis revealed what we expected...hospitality, retail, and government at the top of the list with regard to size and growth;
- Local officials looking for better paying jobs;
- Analysis of highest more specific industries shows a cluster of nine manufacturing companies in these areas...
 - Other nonferrous foundries (331528)
 - Custom roll forming (332114)
 - Other fabricated wire product (332618)
 - Plumbing fixture fitting and trim (332913)
 - Fluid power pump and motor (333996)
 - Electronic capacitor (334414)

Analysis of Local Industry Data



- This group of manufacturing industries was projected to decrease in employment from 2009 to 2019 (1,353 to 866) which could be because of business decline or automation;
- Our experience indicates that, in advanced manufacturing, job loss is as much from productivity gains from automation as it is from the industry leaving the area;
- However, the group of companies was also projected to have a high location quotient (11.36) which indicated continued competitiveness in what is probably a niche market;
- A score of 1.00 indicates a concentration of jobs at the national average

Analysis of Local Occupational Data



- Top occupations in these manufacturing industries...
 - Team assemblers (51-2092)
 - Inspectors, testers, sorters (51-9061)
 - Computer-controlled machine tool operator (51-4011)
 - Chemical equipment operators (51-9011)
 - First line supervisors of production and operating employers (51-1011)
 - Helpers – Production workers (51-9198)
 - Cutting, punching, and press machine operators (51-4031)
 - Machinist (51-9011)
 - Welding machine operators (51-4122)
 - Welders (51-4121)
 - Aircraft structure, surfaces, and systems assemblers (51-2011)
 - General maintenance and repair workers (49-9042)

Connection of Occupations to Other Industries



- When we looked at these occupations from the standpoint of other places in the Waccamaw WIA where these folks were employed beyond manufacturing, we found...
- A strong need in the hospitality industry;
- Other manufacturing industries in the WIA where the jobs occur
 - Noncellulosic organic fiber (325222)
 - Paperboard mills (322130)
 - Commercial machinery repair and maintenance (811310)
 - Machine shops (332710)
 - Surgical appliance and supplies (339113)
 - Plastics bag (326111);

Additional Need for Selected Occupations



- The Trident WIA (south) showed a need for the same occupational group in...
 - Motor vehicle brake systems (336340)
 - Motor vehicle body (336320)
 - Other engine equipment (333618)
 - Construction machinery (333120)
 - Rolled steel shape (331221)
 - Other aircraft parts and equipment (336413)
 - Ship building and repairing (336611)

Additional Need for Selected Occupations



- The Pee Dee WIA (west) showed a need for the same occupational group in...
 - Ball and roller bearing (332991);
 - Poultry processing (311615);
 - Motor vehicle body (336211);
 - All other motor vehicle parts (336399);
 - Fabricated structural metal (332312);
 - Pharmaceutical preparations (325412)

Additional Need for Selected Occupations



- When the projected need for the selected occupations based on new and replacement workers, we found the projected numbers doubled (indicating an aging workforce that will need to be replaced);
- This trending was true in the Waccamaw, Pee Dee, and Trident WIAs

Skill Considerations



- There is a rudimentary career path among these jobs which moves from laborer to machine operator or assembler to supervisor;
- There are skilled trades such as welder, machinist, and CNC operator which may be a related or separate career path;
- All of these occupations require some technical training with various period of on-the-job experience

Connection to Local Issues



- We found a close correlation between the skills taught in the local automotive (PALM) program and the skills needed for the selected occupations;
- We actually found a strong correlation between automotive and aircraft assembly (anticipated for the Charleston area)

Observations on the Case Study



- Skills and the occupations in which they are embedded flow across industries;
- We always need to look deeper into industries...beyond our stereotypes;
- They also flow across arbitrary workforce areas;
- Look for any career pathways that may emerge;
- Remember, you may be the first to identify it; and
- Often, the skill acquisition network that exists is fragmentary and unorganized.

Additional Resources



- MERIC Career Pathways Resources:
<https://www.missourieconomy.org/regional/mowins.stm>
- Regional Cluster Mapping Tool:
<http://www.clustermapping.us/>
- CLASP Alliance for Quality Career Pathways:
<http://www.clasp.org/issues/postsecondary/pages/aqcp-framework-version-1-0>
- ETA and Partner Career Pathways Resources:
<https://careerpathways.workforceegps.org/>
- JFF Accelerating Opportunity:
<http://www.jff.org/initiatives/accelerating-opportunity>